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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,270	07/17/2002	Joerg Sutter	10191/2266	8811
26646	7590	03/22/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			RO, BENTSU	
			ART UNIT	PAPER NUMBER
			2837	
DATE MAILED: 03/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/088,270

Applicant(s)

SUTTER ET AL.

Examiner

Bentsu Ro

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

**SECOND OFFICE ACTION --- A FINAL REJECTION**

1. Claims 8-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogasawara US Patent No. 5,170,106.

With respect to claims 8-13, the examiner maintains the same rejection as that of the first office action. Thus, the first office action is a portion of this final rejection and applicant should refer to the first office action for the rejection of claims 8-13.

Regarding claims 14, 16, 18, the PWM control signal is outputted by the CPU 14, see Fig. 2.

Regarding claims 15 and 17, it is noted that almost all real signals in a control circuit are non-linear type. The non-linear signal can be treated as a linear signal if the signal is chopped into many small sections, each small section thus can be treated as a linear signal. This is how signal is processed in the control circuit. Applicant should see most signal processing textbooks. Thus, the linear or non-linear depends on how the signal is obtained. If the signal is obtained in wide range, then it is almost certainly a non-linear type. However, if the signal is obtained in a small section range, then it can be treated as a linear type.

Claim 19 is similar to that of claim 10, claim 20 is similar to that of the last four lines of claim 8, discussion is omitted.

Regarding claim 21, the correction unit reads onto Ogasawara Fig. 2, the operational amplifier 46, see the first office action, page 4, last comparison paragraph. The correction unit is integrated into the control unit of Ogasawara Fig. 2.

Regarding claim 22, the pulse width controls the motor current as a function of applied voltage, see Fig. 2 circuit.

It is noted that in all controls, including the motor controls, the control parameter is the applied voltage because motor current, motor torque, and the motor speed are all controlled as a function of motor applied voltage.

Applicant should note that, if the load impedance is constant, the current cannot be changed without changing the applied voltage.

Thus, in a motor control, the applied voltage controls the motor speed, the motor current, and the motor torque.

2. Applicant's remarks have been fully considered, but they are not convincing. Applicant's arguments and the examiner's responses are explained below:

**Applicant's argument:**

In the response page 7, the second full paragraph, applicant argues that Ogasawara reference does not identically describe (or even suggest) each of the feature of claim 8, which include the features of an electronic control unit for controlling....., the pulse width of the control signals being reducible in linear or nonlinear proportion to an increasing supply voltage only upon exceeding the nominal voltage.

**Examiner's response:**

Applicant should see the comparison chart of the first office action, wherein, each and every items in the claims and the corresponding teaching in the Ogasawara have been identified.

**Applicant's argument:**

In the response page 7, the third full paragraph, applicant argues that the Ogasawara reference purportedly concerns a method and device for protecting a motor against overload....

**Examiner's response:**

Applicant should note that overvoltage causes overcurrent and overload. Applicant's invention is to reduce the motor applied voltage if the voltage is over the nominal voltage.

The same is true for the Ogasawara's teaching. Ogasawara clearly teaches that, if the voltage is over Eb1, the applied voltage is pulse-width modulated so that the applied voltage will reduce and the overvoltage or overcurrent will not occur.

**Applicant's argument:**

In the response page 7, last paragraph through page 8, first paragraph, applicant argues that Ogasawara "does not identically describe (or even suggest) that voltage level (Eb1) represents a nominal voltage used as a threshold for reducing the pulse width of the control signals.

**Examiner's response:**

Applicant should note that a "nominal voltage" is merely a voltage specifically designed as a reference point for a typical application. For example, a rated voltage is a nominal voltage. In US, the household appliances are rated "120 volts A.C." Thus, the 120 volts is a nominal voltage. All appliances are thus designed to be used with the 120 voltage A.C.

Applicant should further note that in many appliances, the name plates have never used the words "nominal voltage", or have never even identified the 120 volt A.C. as a "nominal voltage". However, we know that the appliances should be used with the 120 volts A.C., thus, we know the 120 volts A.C. is a nominal voltage (or at least obvious to an electrical engineer).

By the same token, even though Ogasawara does not describe the voltage level (Eb1) as a nominal voltage, but the examiner clearly states that the Eb1 is a nominal voltage simply because at that voltage, the pulse width modulation starts.

Whether Ogasawara identifies the Eb1 as a nominal voltage or not, the Eb1 is obviously a nominal voltage to the examiner because (1) it is a starting voltage for the pulse width operation; (2) the nominal voltage is merely a reference voltage specifically designed for a specific operation; (3) the nominal voltage has no function other than a reference voltage.

**Applicant's argument:**

At the middle of page 8, applicant argues that "the comparator signals in Ogasawara indicate excessive torque rather than excessive voltage so that the motor voltage level is irrelevant in this context as long as the number of motor rotations is proportionate to the motor voltage level.

**Examiner's response:**

As explained previously, the only parameter for motor speed, current and torque control is a voltage control because voltage is a function of motor speed, motor torque, and motor current.

Then, how the voltage is controlled??

The voltage is controlled by pulse width modulation using the chopping wave generator circuit 44 and the voltage sensed by the voltage divider circuit.

Applicant should pay special attention to Fig. 2. In Fig. 2, the only sensing device is the voltage divider circuit for sensing motor voltage Eb. Thus, the only control parameter is again the applied voltage, not current, not torque, not speed, etc.

3. **IN SUMMARY:**

- The nominal voltage is Eb1. Whether Ogasawara identifies this voltage as a nominal voltage or not is immaterial because a nominal voltage is merely a reference voltage, and Eb1 is a reference voltage.
- The so-called "voltage control", "speed control", "torque control" and/or "current control", etc. are all ended up with a simple single motor applied voltage control because the voltage is a function of motor speed, motor current and motor torque. Further, controlling the applied voltage is the most simplest way of control
- Ogasawara Fig. 2 clearly shows a single control parameter, namely, the motor voltage Eb. There is no other parameter in the control circuit, namely, no current sensing, no torque sensing, no speed sensing, etc.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication should be directed to Bentsu Ro at telephone number 571 272 2072.

  
Bentsu Ro  
Senior Examiner  
Art Unit 2837